naturally placed on the importance of a highly trained fishing population in regard to questions of national defence, and the immediate object of the memorandum was to interest the Government in this and other purely economic questions. In 1919, however, a series of committees met at Fishmongers' Hall under the presidency of Sir Edward Busk, and detailed recommendations dealing with administration, publicity, education, and scientific research were prepared, printed, and circulated. A beginning was made with the work of consolidating the statutes relating to fishery. Later on the British Trawlers Federation was formed, and proposals for the creation, by Royal Charter, of a British Fisheries Society were drafted. The author of the book under notice was mainly responsible for all this organisation. Throughout the whole movement scientific research was kept in the foreground, and its absolute necessity in any possible scheme of fishery reconstruction was recognised by everyone concerned. It was understood that the industry itself was prepared to back financially a sound programme of scientific and industrial research, and, without doubt, such programmes of education and research would now have been in practice but for the wholly unexpected partial collapse of the fishing industry that occurred in 1920.

These remarks will make clear what is the attitude taken up by Mr. Howell in writing his book. It is an account of the life-histories and economic significance of the various species of marine fishes, and it is very well done indeed. Apart from a few errors, inevitable, perhaps, in a work of this kind, it is a trustworthy account of the material of the marine fisheries, written in a plain but very attractive manner, fortified with clearly constructed statistical statements, very well illustrated and beautifully printed. But, much more than all that, it is a plea, on almost every page, for the further prosecution of marine research in relation to the fisheries, and it aims at the communication of the results of such work to the fisherman and owner of fishing vessels. It is a useful protest against the pedantry of the fisheries investigator. Little of what has been discovered has ever been presented in such a manner as to be understood by the industry in general—though this is quite practicable, as the book itself proves. Men of science almost always write for other men of science, though sooner or later their results must receive application, and this application would come all the more quickly if there were a true *liaison* between the administrators, the scientific workers, and the industry. The furtherance of such a working agreement is, all the way through, the main object of Mr. Howell's admirable book.

J. J.

Wegener's Displacement Theory.

Die Enstehung der Kontinente und Ozeane. Von Prof. Dr. Alfred Wegener. *Die Wissenschaft: Sammlung von Einzeldarstellungen aus den Gebieten der Naturwissenschaft und der Technik.* Herausgegeben von Prof. Dr. Eilhard Wiedemann. Band 66. Zweite gänzlich umgearbeitete Auflage. Pp. viii+135. (Braunschweig: Friedr. Vieweg und Sohn, 1920.) 30 marks.

THIS book makes an immediate appeal to physicists, but is meeting with strong opposition from a good many geologists. This opposition is to be expected, for the author replaces the whole theory of sunken continents, land bridges, and great changes of earth temperature by a displacement theory.

Prof. Wegener's thesis is that the continents are of lighter material, and float like icebergs on a heavier plastic which reaches its highest level at the bottom of the oceans; the poles are not fixed relative to the plastic, and have occupied widely different positions, as, for instance, when Central Europe was a Sahara, or, again, when the great coal fields were laid down along a great circle (equator); land masses under gravitational influence move away from the poles and westwards.

Thus the Americas in their westward drift have heaped up the Andes and the Rockies. The South Atlantic opened early, but the northern portion did not exist until much more recent times. At the great Ice age, in fact, the glaciation in both hemispheres was due to an ordinary polar ice cap. India once stretched down over the Indian Ocean, being united to Africa and Australia. Since that time the Himalayas have been piled up, and Australia has left New Zealand far behind.

Actual measurements of continental and sea levels establish the fact that instead of there being a random distribution about one level there are two well-marked averages, a fact difficult to explain on any subsidence theory. Again, it was shown by Wilde that the earth's magnetic field can be closely imitated on a globe where iron sheets are placed over the ocean areas. On the present theory this is due to the plastic interior being richer in iron and rising higher under the oceans, where there is thus a thicker layer below the temperature at which iron loses its magnetic properties. Recent astronomical work has shown that the latitude of North American and European stations is increasing, but in the absence of measurements from the Far East we cannot prove that this is not due to a displacement of the pole.

The book brings forward a mass of geological

© 1922 Nature Publishing Group

corroboration, although the author only claims to have "got it up" since the idea came to him. The revolution in thought, if the theory is substantiated, may be expected to resemble the change in astronomical ideas at the time of Copernicus. It is to be hoped that an English edition will soon appear.

The Earliest Forms of Society.

(1) *Primitive Society: The Beginnings of the Family and the Reckoning of Descent.* By Dr. E. S. Hartland. Pp. v+180. (London: Methuen and Co., Ltd., 1921.) 6*s*. net.

(2) *Primitive Society.* By Dr. R. H. Lowie. Pp. viii+453. (London: George Routledge and Sons, Ltd., 1921.) 21*s*. net.

IT is interesting to place these two books side by side in order to contrast the methods of attacking the problems involved in the study of primitive society which have been adopted by the respective schools to which the authors belong. (1) Dr. Hartland is one of the leading exponents of the view that there is a reasonable presumption that in the evolution of society wherever the patriarchal system now exists it has been preceded by the matriarchate. In the volume under notice he restates this view and summarises the evidence on which it is based in popular form. (2) Dr. Lowie, however, maintains that this theory is based upon an *a priori* assumption, and that Morgan and his followers, in their desire to formulate a logical scheme of social evolution, have distorted the facts by confining their attention to a single group of data. Pouring scorn on the heads of "the older school of anthropologists," he insists upon the empirical character of the evidence, and would have each case taken on its merits, subjected to intensive study, and treated as a whole.

After a review of the evidence on these lines, Dr. Lowie concludes that the theory of unilinear development is entirely fallacious and unwarranted. So far from the group organisation of the *sib* or clan being the foundation of primitive society, it is only one, and that frequently not the most important, of a number of forms of organisation to which the individual may belong. While he is prepared to allow that duplication of conditions may produce duplication of a sequence, as in the relation of polyandry and female infanticide, he formally abjures independent reproduction of the same series of "stages." He goes so far as to say that he is "not convinced of the reality of the totemic phenomenon," and for him the problem of totemism resolves itself into a "series of specific problems not related to one another." If, however, he believes in independent development only in the very limited degree indicated, neither is he a whole-hearted supporter of diffusion; while attaching full weight to diffusion, particularly in continuous areas, he recognises that it does not necessarily preclude independent invention within a limited scope.

It must be acknowledged that if Dr. Lowie's argument in favour of empiricism fails to carry conviction, he has done good service in emphasising the necessity for intensive study of all the facts of a given area as a whole. By concentration on the group organisation of the kin, the supporters of the evolutionary theory have sometimes been led astray. The existence of the family as a social unit at an early stage has been obscured by the view that the family emerged from the group. Dr. Hartland, indeed, speaks of "sexual promiscuity—relieved perhaps by temporary unions in the nature of monogamy." At the same time, owing to his preoccupation with kin organisation, he is unable "to bring Andamanese society within any category at present known." This fact does not, however, suggest to Dr. Hartland a modification of his conclusions, as might perhaps be expected; he prefers to await further evidence.

Our Bookshelf.

The Calendar: Its History, Structure, and Improvement. By Alexander Philip. Pp. xii+104. (Cambridge: At the University Press, 1921.) 7*s*. 6*d*. net.

THIS is not the kind of work that we expect from the Cambridge University Press. It contains numerous historical errors, and is not free from astronomical errors also. The author has endeavoured to guard against criticism of the latter by stating in his preface that his astronomical facts have been derived from the commonly available sources, and that he has disregarded "qualifying refinements known to modern astronomy but irrelevant to a calendrial purpose." This ambition has not prevented him, however, from stating the length of the tropical year to hundredths of a second, or the length of 4000 tropical years to an exact number of minutes. The introduction of these refinements, "irrelevant to a calendrial purpose," might have been pardoned, if they were accurate, which, unfortunately, they are not. But it is in the history of the calendar that the defects of the book are particularly displayed. The author ignores the two most valuable treatises on the subject, Ideler's "Handbuch der Mathematischen und Technischen Chronologie," and Ginzel's work which bears the same title. He writes in an easy way of Egyptian, Chaldean, and Chinese calendars;

© 1922 Nature Publishing Group